shorting absent external pressure. Although a wide variety of radii of curvature will undoubtedly work, it is known that a substrate of **25** in. radius of curvature and a 0.003 in thick polyester membrane molded with a form having a **22** in. radius of curvature are satisfactory. As shown in FIGS. **1** and **2**, it is desirable with this anti-short means, to bond the periphery of membrane **11** to substrate **10** outside Y strips **20–24** to increase the clearance between the peripheral X and Y strip, areas. Spacer **53** may also be used for this purpose. It is likely, although not confirmed, that use of membrane **11**'s natural resiliency and curvature to provide the necessary anti-short spacing between X and Y strips requires a greater difference in radii of curvature for substrate **10** and membrane **11** than do the previously mentioned anti-short means. Thus, while a **3** in. smaller radius works with a **25** in. substrate radius in all **3** cases, a **1** in. difference or less may well be satisfactory when grid **45** or piezoresistant coating **51** is used.

During the manufacture of this apparatus, it is important that the surfaces of strips **20–24** and **12–16** be relatively free of dust and other foreign matter during attachment of membrane **11** to substrate **10**. However, the relatively wide contact areas between crossing strips does tolerate a small amount of such foreign matter, particularly as long as the foreign matter is non-conductive.

The preceding describes the invention; what is claimed is:

1. A switch matrix to be carried on the face of a rigid insulator substrate having a predetermined radius of curvature, and comprising:
   a. a plurality of spaced apart conductive first strips firmly adhering to the face of the substrate;
   b. a resilient insulating membrane having an undistorted curved contour substantially alike the predetermined contour of the substrate, and attached about its periphery to the face of the substrate in a position matching the membrane contour to the substrate contour and supported apart from the first strips thereon in a predetermined area of the membrane by the natural resilience of the curved contour; and
   c. a plurality of flexible, spaced apart conductive second strips firmly adhering to the resilient membrane surface facing the substrate, each of said second strips located in the area spaced apart from the first strips and thinner than the spacing therefrom, and each of said second strips crossing at least two first strips.

2. The switch matrix of claim **1** wherein the first and second strips and the membrane are all transparent.

3. The switch matrix of claim **1**, wherein the first conductive strips are substantially parallel to each other the second strips are substantially parallel to each other, and the resilient membrane is oriented to place the second strips substantially orthogonal to the first strips.

4. The switch matrix of claim **1**, wherein the substrate contour is convex, and wherein the contour of the membrane is slightly more convex than the contour of the substrate.

5. The switch matrix of claim **4** wherein the substrate contour is spherical.

6. The switch matrix of claim **5** wherein the contour of the membrane has a radius of curvature slightly smaller than that of the substrate.

7. The switch matrix of claim **6**, wherein the membrane's radius of curvature is about 1 to 4 inches smaller than the substrate's.

8. The switch matrix of claim **7** wherein the substrate's radius of curvature is approximately 25 inches and the membrane's undistored radius of curvature is between about 21 and 24 inches.

9. The switch matrix of claim **1**, wherein the resilient membrane comprises polyester film.

10. The switch matrix of claim **1**, including an insulating sheet having a contour conforming to the substrate face and fastened thereto in a position matching the sheet's contour to the substrate, said sheet on the opposite face thereof carrying the first strips.

11. The switch matrix of claim **10**, wherein the sheet, conductive strips, and membrane are all transparent.

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